

A Conceptual Review of Age Effect on L2 Acquisition

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Abstract

The importance of age effect on an additional language (L2) acquisition has long been recognized in the field of L2 education. Research was conducted to reveal the influence of age to the rate and ultimate attainment of L2 teaching and learning, yet controversial results were discovered. Consequently, stereotypes and misunderstanding exist among educators, practitioners, parents and/or guardians, which may affect students' L2 learning. This article reviewed the significant studies in the past and discussed the current agreements and debates around the age effect on L2 acquisition. It provides a comprehensive overview of the topic that is beneficial for L2 education. The author proposed that more contributions are needed to provide additional evidence to explore this issue.

Keywords: age, second language acquisition, L2 acquisition, Critical Period Hypothesis

1. Introduction

In the field of second language acquisition (SLA), an important topic is the age effect on an additional language (L2) acquisition. Questions about age effect on L2 acquisition include but not limited to the best or the most appropriate time of age of onset (AO) (e.g., "What is the best time for children to start to learn an L2?"), the influence of age on L2 learning (e.g., "Are students in different ages good at learning different aspects of the target language?"), the effective instructional strategies to teach an L2 (e.g., "How should teachers effectively teach the L2 to students in different ages?"), and the age effect on SLA in different L2 learning contexts (e.g., "How does age affect L2 learning in a foreign language learning context versus a second language context?") (Agulló, 2006; Coppieter, 1987; Lenneberg, 1967; Muñoz, 2006). The importance of age effect on L2 acquisition has been recognized in the field of SLA not only because researchers and teachers are interested in the optimal period(s) of time for L2 teaching and learning, the effective instructional methods, and age as a lens of understanding the dynamic nature of L2 acquisition that is influenced by various factors, but also due to the financial interests in the L2 education: it influences L2 curriculum design since the government is concerned about the "cost effectiveness" of investing L2 education and the corresponding teaching and learning outcomes, as for instance, it will cost huge amount of money if a nation decides to change its curriculum, shifting the beginning of formal L2 instruction in schools from fifth grade to third grade.

2. The pioneers' research findings

It has been conventionally believed that younger children are better at learning an additional language than older children and adults. This belief may be based on the hypothesis that young children are more potential and faster in L2 learning. However, it was not until about the 1960s that this hypothesis was systematically studied and reported in empirical research. In 1959, neurolinguistic scholars Penfield and Roberts claimed that there is a critical age period for optimal L2 acquisition, after which L2 learning becomes much harder and it is almost impossible to achieve the same attainment if the AO is after this critical period. They explained that the diminished L2 learning ability is caused by the loss of plasticity in human brains by the age of nine years old (Penfield and Roberts, 1959). Soon this idea became popular and influential in 1960s, known as the Critical Period Hypothesis (CPH). In 1967, Lenneberg published his book to support CPH by stating that the critical age period of L2 learning may also relate to the completion of the process of lateralization in the left brain hemisphere by the onset of puberty, which governs language functions (Lenneberg, 1967).

Interestingly, much evidence supporting CPH came from tragic children case studies and special education. Curtiss and Candland reported in their cases that, Genie and other feral children were not able to achieve the same language level as their peers in first language (L1), after being deprived from interacting and communicating with social members until puberty (Candland, 1993; Curtiss, 1977). They thought that the CPH may explain why those children were not able to develop the same level of language proficiency as their peers even after efforts were made to help them learn the language. On the other hand, by studying the cases of deaf children, Mayberry, Svirsky, and Holt suggested that the incomplete language development of deaf children who grew up without exposure to spoken or sign language input may also support the hypothesis of the existence of a critical period for language learning (Mayberry, 2007; Svirsky and Holt, 2005).

3. Evidence against CPH

Although the CPH was believed to be plausible by many scholars, the results of a number of studies were against it, since research on age effect in the field of SLA flourished in the 1970s (Burstall, 1974; Krashen et al., 1979; Snow and Hoefnagel-Höhle, 1977, 1978). Perhaps Burstall's research from 1964-1974 was one of the first large-scale and longitudinal empirical studies addressing the age effect on L2 learning. His research was funded by the British government to study the feasibility and desirability of teaching and learning a foreign language (French as an L2 in England and Wales) in primary grades. As a matter of fact, comparing the L2 learning outcomes of different groups of children with different AOs was not the only focus of this research. In his publication in 1974, Burstall also reported results of comparisons such as the achievements between genders, performance among children from different socioeconomic backgrounds, and students' attitudes towards L2 learning (Burstall, 1974). When discussing age effect on L2 acquisition, he stated that the younger L2 learners did not outperform the older after receiving the same amount of in-class instruction, which put CPH into question.

After Burstall, large amount of studies were conducted in the second language contexts to examine the relationship between age and L2 acquisition. In 1977 and 1978, Catherine Snow and Marian Hoefnagel-Höhle proposed that adolescents and adults are better learners than young children in both in-class instruction and naturalistic exposure to L2, according to their research findings that contradicted CPH (Snow and Hoefnagel-Höhle, 1977, 1978). In 1979, Stephen Krashen, Michael Long, and Robin Scarcella furthered this idea by claiming that older learners are better at learning an L2 in a short period of time but younger are better in the long run (Krashen et al., 1979). Their work was famously known as the study comparing the rate of L2 learning between young children and older learners in the field of SLA.

Despite the focus on the rate of L2 learning, later research began to question the possible differences in ultimate L2 attainment between the early and late starters. A number of articles published in the 1980s and 1990s addressed the question of attainment in morphosyntax in second language contexts and the results were controversial. For instance, investigating the upper limits of successful late L2 learners' morphosyntactic attainment, Coppieter strongly supported the existence of a critical period (Coppieter, 1987), whereas Birdsong found strong evidence against it after replicating Coppieter's research (Birdsong, 1992). Conflicting findings were also discovered in studies emphasizing on the correlation between the AO and morphosyntactic attainment. In 1989, Johnson and Newport stated that the relationship between intuition in grammar and age disappeared around puberty (Johnson and Newport, 1989), yet interestingly, Birdsong and Molis claimed differently as they found that grammatical intuition and age were still correlated after puberty (Birdsong and Molis, 2001).

Besides these conflicts, another important finding on L2 attainment that contradicts CPH is the existence of very successful late L2 learners. In addition to the successful learners found in Johnson and Newport (1989) and Birdsong and Molis (2002), Ioup's research on Julie was a widely known case study of successful late L2 learners (Ioup et al., 1994). Julie was a very successful Arabic learner living in Egypt, who did not receive any formal in-class Arabic language instruction but only learned the language in a naturalistic way. The existence of Julie, as well as other successful late L2 learner cases, was strongly against CPH.

4. A possible common ground

Unlike the contradicted findings in the age effect on morphosyntax learning in L2 acquisition, it seems that scholars are more likely to reach an agreement in phonology studies. For example, Tom Scovel believed that CPH explains the non-native accent developed in L2 pronunciation after his years of research in foreign accent detection. He stated that foreign accent is more likely to occur if the L2 is learned late in life (Scovel, 1988). Flege supported this claim as he posited that the younger L2 learners have an advantage over the older since the younger have less experience with their first language, so their mental representation of speech sounds is not stabilized (Flege, 1999). Scovel and Flege, as well as many other SLA researchers, agreed on an optimal period for L2 phonology learning that is around six years old, before which it is more likely for children to develop native or near native-like accent in the target language.

As for L2 learners whose AOs were after the age of six, Ioup's, Bongaerts', and Moyer's work delivered encouraging information for late learners who aim to develop native or near native-like accent in target languages in both second and foreign language learning. They stated that it is not impossible for late L2 learners to sound natively or near-natively if the learners receive large amount of high-quality L2 instruction, have high motivation in learning L2 phonology and pronunciation, and keep on learning and practicing the target language (Bongaerts, 1999; Ioup et al., 1994; Moyer, 1999).

5. Recent research in foreign language contexts

In addition to the flourish in researching age effect on L2 acquisition in second language contexts, the recent studies of age and L2 acquisition in foreign language contexts also revealed interesting and important information. Scholars, such as Singleton and Muñoz, contributed some statements that became influential in the field of SLA.

In his 2003 article that was published in the book *Age and the Acquisition of English as a Foreign*

Language, David Singleton addressed the hypothesis of critical period in foreign language learning, claiming that age may have universal influence on L2 acquisition, yet the contextual factors in the foreign language contexts moderate the age effect and should be considered carefully (Singleton, 2003). He also contended that SLA researchers in foreign language contexts should be cautious in research design when comparing the differences in L2 learning outcomes between early starters and late learners, since more time is needed to reveal any considerable long-lasting differences in the contexts that the target languages are learned as foreign languages than where they are learned as second languages. Muñoz supported Singleton's suggestion based on her longitudinal research (the BAF project: 1995-2004) conducted in Catalonia in Spain. She suggested that older learners have certain advantages in foreign language learning due to their superior cognitive development. Moreover, since the L2 is usually only available through formal in-class instruction in a foreign language learning context, younger learners need much more time to catch up with late starters, which was nine years revealed in her research (Muñoz, 2006). While acknowledging the effect of age on L2 acquisition, Muñoz believed that the contextual factors, such as the quality of language teachers and instruction, the continuity of L2 education, and the frequency of exposure to the target language, are important variables that greatly affect L2 acquisition in foreign language contexts.

6. Conclusion

The age effect on L2 acquisition has long been an important and controversial topic in the field of SLA. Although many research findings are against the existence of a critical period for L2 learning, many scholars tend to support that age does affect L2 acquisition. Based on the accumulating evidence, it is believed that older learners have an advantage over the younger yet the younger usually catch up and outperform the older after years of L2 learning. Moreover, children who start to learn an L2 early (e.g., before puberty) are more likely to achieve native or near-native proficiency in the target language. In addition, the influence of age on L2 acquisition in foreign and second language contexts could be different, and the contextual factors in a foreign language learning context should be taken into consideration much carefully.

Overall, the existence of CPH and the determination of a specific age period that is critical for L2 acquisition remain debatable, while the importance of age effect on L2 acquisition is recognized. Further research is encouraged to provide more information about the effect of environmental factors that may influence the age effect on L2 acquisition, especially in foreign language contexts. On the other hand, scholars may want to re-conceptualize the criteria to evaluate L2 learners' attainment in their research design, as the conventional standard is based on the language performance of native speakers of the target languages, which is being criticized recently. Additionally, more contributions are welcomed to support classroom language teachers to provide effective, high quality, and age-appropriate instruction that is beneficial for students' L2 learning.

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